

Patent claims

1. Method for coding a sequence of digitized images with a plurality of macro blocks in error-prone networks, characterized in that
  - 5       - a section of the macro blocks of the images in a section of the image are coded in a first intra-coding mode depending on predetermined criteria,
  - another section of the macro blocks of the image is coded in a second intra-coding mode or in an inter-coding mode in  
10       which case in the inter-coding mode for movement vectors, the number of accessible reference images selects the macro blocks,
  - whilst the selection from the number of accessible reference images is limited in such a way that referencing takes place  
15       from image areas that were not subjected to the first intra-coding mode at a later stage.
2. Method according to Claim 1, characterized in that  
20       the predetermined criteria for carrying out the coding in a first intra-coding mode are error robustness criteria with respect to an incorrect transmission of coded images.
3. Method according to Claim 1 or 2, characterized in that  
25       the coding is carried out in a first intra-coding mode at regular time intervals.
4. Method according to Claim 1 or 2, characterized in that  
      the coding is carried out in a first intra-coding mode at random time intervals.

5. Method according to one of the preceding claims,  
characterized in that  
the coding in a second intra-coding mode or in an inter-coding  
mode is carried out for reasons of coding efficiency.

5 6. Method according to one of the preceding claims,  
characterized in that,  
to limit the reference images for coding a macro block, the  
following steps were performed:

- 10 (a) For each inter-coding mode from the number of possible  
inter-coding modes and for each reference image from the  
number of accessible reference images, the rate distortion  
optimized movement compensation selects optimized movement  
vectors from the number of possible movement vectors.
- 15 (b) From a complete number that consists of the possible  
combination of inter-coding modes and reference images, a  
limited number is created in which case the combinations  
that were coded in a later image in a first intra-coding  
mode are removed.
- 20 (c) Based on the limited number and a number of intra-coding  
modes, the best combination based on the rate distortion  
criteria is formed.
- 25 (d) For the case in which the image block was coded with an  
intra-coding mode in the previous step (c), it is  
established in an additional step whether or not the image  
block was intra-coded on the basis of the error robustness  
criteria (first intra-coding mode) or on the basis of the  
rate distortion optimization (second intra-coding mode).

7. Method according to Claim 6,  
characterized in that  
30 the rate distortion criteria are determined in order to

determine the best combinations depending on an error rate to be expected when the coded images are transmitted.

8. Method according to Claim 7,  
characterized in that,  
5 to determine the rate distortion criteria, the distortion of the pixel values contains the total of the quadratic differences between the pixel values before coding and the correspondingly decoded pixel values.
9. Method according to Claim 7,  
10 characterized in that  
the distortion is estimated to determine the rate distortion criteria.
10. Method for decoding a sequence of digitized images in error-prone networks, where the method is embodied in such a way that  
15 a sequence of digitized images is decoded with a method from the preceding claims.
11. Method according to Claim 12,  
characterized in that  
an error concealment is carried out in the decoded images.
- 20 12. Device for coding a sequence of digitized images in error-prone networks, where the device is embodied in such a way that a method can be carried out according to one of the claims 1 to 9.
13. Device for decoding digitized images in error-prone networks,  
where the device is embodied in such a way that a method can be  
25 carried out according to Claim 10 or 11.